

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Carnevali, Jeffrey D.)
Patent No.: US 5,885,845)
Serial No.: 08/803,021) **Preliminary Amendment**
Filed: 02/21/97)
Issued: 12/08/98)
Title: Universally Positionable)
Mounting Device)
Group No.: Unknown)
Examiner: Baxter, G.)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

IN THE CLAIMS

Please add the following additional claims 38-56 in the present reissue application.

38. A mounting device for interposing along a line of juncture between a pair of relatively movable objects, the mounting device providing any of relative motion and fixed positions between the two objects at selected angular orientations, the mounting device comprising:

first and second coupling members formed on the first and second objects, respectively, and defining spaced first and second loci, respectively, each of the first and second coupling members having a substantially smooth part spherical outer surface formed of resilient radially compressible material;

a split arm assembly comprising relatively rigid arm sections operatively juxtaposed to one another along the line of juncture between the spaced loci;

the arm sections clamped together relatively crosswise the plane of the line of juncture in a plurality of clamped together positions;

operatively opposing first and second sockets formed at respective first and second end portions of the arm sections, the first and second sockets having substantially smooth part spherical concave surfaces which substantially coincide with respective circles of revolution having respective centers essentially at the first locus and the second locus when the arm sections are in one of the plurality of clamped together positions;

a first clamped together position wherein the first sockets and the first coupling member form a first relatively rotatable ball and socket joint having a first circle of revolution with its center at the first locus, and the second sockets and the second coupling member form a second relatively rotatable ball and socket joint having a second circle of revolution with its center at the second locus;

a second clamped together position having the first sockets positioned to radially compress and interlock with the outer surface of the first coupling member, and having the second sockets and the second coupling member form a second relatively rotatable ball and socket joint; and

a third clamped together position having the first sockets positioned to radially compress and interlock with the outer surface of the first coupling member, and having the second sockets positioned to radially compress and interlock with the outer surface of the second coupling member.

39. An interlocking ball and socket joint comprising:

a coupling member partially formed of a resilient deformable material in a substantially globular shape having an unconstrained diameter and substantially encompassing a mechanical core adapted to accept a mechanical attachment outside the unconstrained diameter;

a socket having first substantially opposing interior surfaces shaped to substantially conform to the substantially globular portion of the coupling member; and

an adjustable clamp disposed subsequently in a plurality of different adjustment relationships to the opposing concave socket surfaces,

one adjustment of the clamp conforming the first opposing interior socket surfaces in a relatively rotational relationship with the coupling member, wherein the opposing interior socket surfaces partially encompass a spherical volume having substantially the same diameter as the globular portion of the coupling member, whereby the socket and the coupling member are relatively rotatable, and

another adjustment of the clamp conforming the first opposing interior socket surfaces in an interlocking relationship with the coupling member, wherein the opposing interior socket surfaces partially encompass opposing spherical segments of the coupling member that are spaced apart a distance that, combined with a height of each of the opposing spherical segments, is less than the unconstrained diameter of the globular portion of the coupling member, whereby the socket deforms the coupling member and interlocks the socket and the coupling member in a relative angular orientation.

40. The interlocking ball and socket joint of claim 39, wherein the globular shape of the coupling member further comprises a substantially smooth spherical shape.

41. The interlocking ball and socket joint of claim 40, wherein the mechanical core further comprises a substantially rigid mechanical core.

42. The interlocking ball and socket joint of claim 41, wherein each of the interior socket members further comprises substantially smooth and rigid concave surfaces.

43. The interlocking ball and socket joint of claim 42, wherein one of the smooth concave surfaces further comprises an indentation formed therein.

44. The interlocking ball and socket joint of claim 42, further comprising:

a second coupling member partially formed of a resilient deformable material in a substantially globular shape having an unconstrained diameter and encompassing a mechanical core having a projection extending outside the unconstrained diameter; and

a second socket adapted to accept a mechanical attachment and having second substantially opposing concave surfaces shaped to substantially conform to the substantially spherical portion of the second coupling member; and

wherein:

the adjustable clamp is further disposed subsequently in a plurality of adjustment relationships to the second opposing concave socket surfaces,

one adjustment of the clamp conforming the second opposing concave socket surfaces in a relatively rotational relationship with the second coupling member, wherein the second opposing concave socket surfaces partially encompass a second spherical volume having substantially the same diameter as the globular portions of the second coupling member, whereby the second socket and the second coupling member are relatively rotatable, and

another adjustment of the clamp conforming the second opposing concave socket surfaces in an interlocking relationship with the second coupling member, wherein the second opposing concave socket surfaces partially encompass second opposing spherical segments of the second coupling member that are spaced apart a second distance that, combined with a height of each of the second opposing spherical segments, is less than the unconstrained diameter of the globular portion of the second coupling member, whereby the second socket deforms the second coupling member and interlocks the second socket and the second coupling member in a second relative angular orientation.

45. The interlocking ball and socket joint of claim 44, wherein the disposition of the adjustable clamp in a plurality of adjustment relationships to the first and second opposing concave socket surfaces further comprises disposition of the adjustable clamp in a plurality of different adjustment relationships to the first and second opposing concave socket surfaces that apply differential clamping forces between the first and second opposing concave socket surfaces.

46. The interlocking ball and socket joint of claim 44, wherein one of the first and second opposing concave surfaces shaped to substantially conform to the globular portion

of the coupling member further comprise concave surfaces formed with a radius substantially the same as the radius of the unconstrained diameter of the globular portion.

47. An interlocking ball and socket joint comprising:

a coupling member having a radially compressible material formed in a substantially spherical shape having an uncompressed outer diameter and formed around a relatively rigid core having a projection extending outside of the unconstrained diameter;

a socket adapted to accept a mechanical attachment and comprising two or more substantially rigid socket members each having substantially smooth concave surfaces coextending with a portion of the uncompressed outer diameter of the spherical portion of the coupling member; and

an adjustable clamp mechanically attached to the socket members and subsequently positioning the socket members in a plurality of opposing relationships to one another,

one adjustment of the clamp positioning the socket members in a opposing relationship on either side of the coupling member and relatively rotatable thereto, and

another adjustment of the clamp positioning the socket members in a opposing relationship on either side of the coupling member and compressing the radially compressible material thereof, whereby the socket members substantially compress the coupling member and interlock the socket members with the coupling member in a relative angular orientation.

48. The interlocking ball and socket joint of claim 47, wherein the concave surfaces of the socket members further comprise radial surfaces having radii substantially identical to the radius of the uncompressed outer diameter of the coupling member

49. The interlocking ball and socket joint of claim 48, wherein the coupling member further comprises radially compressible material rotationally fixed to the rigid core.

50. The interlocking ball and socket joint of claim 49, wherein one of the smooth concave surfaces further comprises an indentation formed therein.

51. The interlocking ball and socket joint of claim 47, further comprising:

a second coupling member having a radially compressible material formed in a substantially spherical shape having a second uncompressed outer diameter and formed around a second relatively rigid core having a projection extending outside of the second unconstrained diameter;

a second socket adapted to accept a mechanical attachment and comprising two or more second substantially rigid socket members each having substantially smooth concave surfaces coextending with a portion of the second uncompressed outer diameter of the spherical portion of the second coupling member; and wherein

the adjustable clamp is further mechanically attached to the second socket members and subsequently positioning the second socket members in a plurality of opposing relationships to one another,

a third adjustment of the clamp positioning the second socket members in a opposing relationship on either side of the second coupling member and relatively rotatable thereto, and

a fourth adjustment of the clamp positioning the second socket members in a opposing relationship on either side of the second coupling member and compressing the radially compressible material thereof, whereby the second socket members substantially compress the second coupling member and interlock the second socket members with the second coupling member in a relative angular orientation.

52. A method of fixing relative angular orientation between a ball and a socket, the method comprising:

mechanically fixing a substantially globular structure of sturdy but compressible material around a first end of an elongated rigid mechanical structure having first and second ends;

adapting the second end of the elongated rigid structure to accept a mechanical attachment thereto; and

disposing two opposing socket surfaces about the globular structure, the two opposing socket surfaces adapted for disposing in a first relatively rotational relationship thereto and a second angularly fixed relationship thereto, wherein the compressible material is compressed between the two opposing socket surfaces.

53. The method of claim 52, wherein the globular structure is formed with an uncompressed radius substantially identical to one of the two opposing socket surfaces.

54. The method of claim of claim 53, further comprising forming the globular structure formed with a substantially smooth surface.

55. The method of claim of claim 54, wherein each of the interior socket members further comprises substantially smooth and rigid concave surfaces.

56. The method of claim of claim 55, further comprising:

mechanically fixing a second substantially globular structure of sturdy but compressible material around a first end of a second elongated rigid mechanical structure having first and second ends;

adapting the second end of the second elongated rigid structure to accept a mechanical attachment thereto; and

disposing two opposing second socket surfaces about the second globular structure, the two opposing second socket surfaces adapted for disposing in a first relatively rotational relationship thereto and a second angularly fixed relationship thereto, wherein the compressible material is compressed between the two opposing second socket surfaces.

REMARKS

The present reissue application is filed by reason of the patentee claiming less than he had the right to claim in the patent. The present reissue application is filed before the two year anniversary of the issue of the patent. No amendments to the claims, specification, or drawings are made. No new matter is added. The additional claims

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numbered 38-56 claim the invention described in the specification and claims as originally filed.

The claims being in form for allowance, allowance is respectfully requested.

If the Examiner has questions or wishes to discuss any aspect of the case, the Examiner is encouraged to contact the undersigned at the telephone number given below.

Respectfully submitted,

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